



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/720,249

11/25/2003

Kenichi Osada

H-1123

4095

7590

08/30/2006

MATTINGLY, STANGER & MALUR, P.C.  
SUITE 370  
1800 DIAGONAL ROAD  
ALEXANDRIA, VA 22314

EXAMINER

WEISS, HOWARD

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/720,249		OSADA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Howard Weiss		2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-8 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Attorney's Docket Number: H-1123

Filing Date: 11/25/03

Continuing Data: none

Claimed Foreign Priority Date: 12/9/02, 11/11/03 (JPX)

Applicant(s): Osada et al. (Kawahara, Yamaoka)

Examiner: Howard Weiss

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1 and 6 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz (U.S. Patent No. 3,521,242) and Yamada (U.S. Patent No. 5,986,924).

Katz shows most aspects of the instant invention (e.g. Figure 8) including:

- a plurality of word **36** and bit **30a,b** lines
- a plurality of memory cells (see Figure 9)
- each cell consisting of (1,2) p-channel load transistors **14,22**, (3,4) n-channel driver transistors **12,20** and (5,6) n-channel transfer transistors **92,32**

- where the gate and channel regions of transistors (1-4) are not coupled together and the channel regions are floating
- drains of (1,3) are connected to the gates of (2,4) and drains of (2,4) are connected the gates of (1,3) and the source/drain path of (5,6) are connected to respective bit lines

Katz does not show the channels of (5,6) coupled to their respective gates and to a first wiring line. Yamada teaches (e.g. Figure 2) to couple the channels of transfer transistors **21,22** to a first wiring line **W10** and the respective gates to improve the read/write speed of the memory cell. It would have been obvious to a person of ordinary skill in the art at the time of invention to couple the channels of transfer transistors to a first wiring line and the respective gates as taught by Yamada in the device of Katz to improve the read/write speed of the memory cell.

In reference to the claim language referring to the supplied voltages and potentials to word and bit lines and other feature of the memory cell, intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

3. Claims 2 to 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz and Yamada, as applied to Claim 1 above, and further in view of Kotani (U.S. Patent No. 6,638,799).
4. Katz and Yamada show most aspects of the instant invention (Paragraph 5) except the memory device being on a chip with a first and second semiconductor layers are separated by an insulating layer and (1-6) transistors' diffusing layers are formed in said first semiconductor layer with the channel regions separated by an insulating

layer. Kotani teach (e.g. Figure 1) to form n- and p-channel transistors **Rnt**, **Rpt** on a chip with a first **5** and second **3** semiconductors layers are separated by an insulating layer **4** and the transistors' diffusing layers **19** are formed in said first semiconductor layer with the channel regions **14,22** separated by an insulating layer **6** to fix a body electrical potential (Column 5 Lines 18 to 26). It would have been obvious to a person of ordinary skill in the art at the time of invention to form n- and p-channel transistors on a chip with a first and second semiconductors layers are separated by an insulating layer and the transistors' diffusing layers are formed in said first semiconductor layer with the channel regions separated by an insulating layer as taught by Kotani in the device of Katz and Yamada to fix a body electrical potential. Additionally, it is obvious to use vertical transistors since they are common in SRAM devices.

#### ***Response to Arguments***

5. Applicant's arguments filed 7/10/2006 have been fully considered but they are not persuasive. In reference to the coupling of the driver MOSFETs, the embodiment shown in Figure 2 of Yamada teaches to only couple the channel regions of the transfer MOSFETs **21,22** to the word line **WL0** leaving the driver MOSFETs of Katz floating. In reference to the rejection not addressing the problem confronted by the claimed invention ("ensuring stable operation of the circuit while maintaining sufficiently decreased space requirements"), the mere fact that the references relied upon by the Examiner to evince an appreciation of the problem identified and solved by the instant invention is not, standing alone, conclusive evidence of the non-obviousness of the claimed subject matter. The references may suggest doing what an applicant has done even though those of ordinary skill in the art were ignorant of the existence of the problem. *In re Gershon*, 152 USPQ 602 (CCPA 1967).

In view of these reasons and those set forth in the present office action, the rejections of the stated claims stand.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

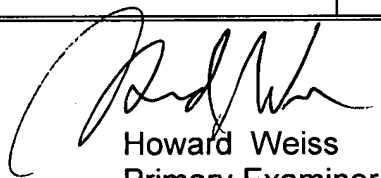
7. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.
9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

Art Unit: 2814

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 369; 365/156	thru 8/23/2006
Other Documentation: none	
Electronic Database(s): EAST, IEL	thru 8/23/2006

  
Howard Weiss  
Primary Examiner  
Art Unit 2814

31 August 2005